Devi Ahilya University, Indore, India Institute of Engineering & Technology			III Year B.E. (Computer engineering /Information Technology) (Full Time)			
Subject Code & Name	Instructions Hours per Week		Credits			
5ITRL3	L	T	P	L	T	P	Total
Scripting Language Programming Laboratory	0	0	2	0	0	1	1
Duration of Practical: 2 Hours						

Learning Objectives:
- Understand the basic syntax and features of Python programming language.
- Learn how to work with variables, data types, operators, loops, conditional statements, functions, and modules in Python.
- Understand the basics of database connectivity using Sqlite and learn how to execute queries, handle transactions, and work with functions and methods.

Prerequisite: Programming Concepts.
UNIT-I
Features of Python ,Setting up path ,Working with Python ,Basic Syntax ,Variable and Data Types ,Operator, If ,If- else ,Nested if-else, For ,While ,Nested loops,Break Continue Accessing Strings ,Basic Operations ,Function and Methods.

UNIT-II
Introduction of   Sqlite, Database   connectivity, Accessing   tuples, Executing queries, Transactions, Operations Working, Handling error Functions and Methods, Printing on screen Reading data from keyboard , Opening and closing file ,Reading and writing files.

UNIT-III
Graphics and GUI programming-Drawing using Tkinter and python. Networking and Multithreaded programming –Sockets, Thread and Processes, Chat application.

UNIT-IV
Class and object. Attributes, Inheritance, Overloading ,Overriding ,Data hiding Regular expressions ,Match function ,Search function ,Matching VS Searching ,Modifiers ,Patterns, CGI(Introduction, Architecture ,CGI environment variable, GET and POST methods ,Cookies ,File upload.

UNIT-V
Web Frameworks - for developing server-side Web applications in Python, Web Browse Programming - interfacing with existing browsers and browser technologies

Learning Outcomes:

After completion of the course students will be able to –

1) Acquiring fundamental knowledge of Python language syntax, variables, data types, operators, and control statements for implementing basic algorithms and programs.
2) Developing proficiency in file handling, database connectivity, and networking concepts, including sockets and multithreading, for building efficient and scalable applications.
3) Familiarizing with object-oriented programming concepts, such as inheritance, overloading, overriding, and data hiding, to create modular and extensible code.
4) Gaining practical experience in using graphical user interface (GUI) programming with Tkinter and web development frameworks, such as Flask and Bootstrap, to build interactive and user-friendly applications.
5) Understanding and implementing regular expressions and CGI programming for pattern matching, web server communication, and file uploads.

Reference Books:

[1]. John V Guttag. "Introduction to Computation and Programming Using Python",
[2]. Prentice Hall of india
[3]. R. Nageswara Rao, "Core Python Programming", dreamtech
[4]. Wesley J. Chun. "Core Python Programming - Second Edition", Prentice Hall
[5]. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, "Data Structures and Algorithms in Pyhon", Wiley
[6]. Kenneth A. Lambert, "Fundamentals of Python – First Programs", CENGAGE Publication
[7]. Luke Sneeringer, "Professional Python", Wrox
[8]. Hacking Secret Ciphers with Python", Al Sweigart, URL- https://inventwithpython.com/hacking/chapters

List of Practical Assignments:

Students are given programming assignments to learn following .

1) How to take input through file/command line/ network.
2) Concept of Python List, Python String, Python Dictionary, Python Tuples and data type conversion.
3) Techniques of function calling, modules like import, from import etc.
4) Basic I/O functions and exception handling in Python.
5) Concept of object oriented programming, built in class attributes, regular expressions for pattern matching.
6) To work with database interfaces (Sqlite).
7) Concept of networking using Python
8) Web development using web framework flask, bootstrap.
9) Use of XML, CSS, HTML, AJAX to understand the concept behind web browsing.
10) A project to be developed which uses the above concepts.